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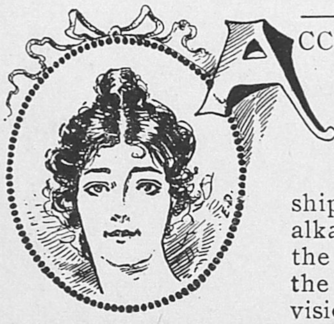
SOME MODERN USES OF GLASS.



ACCORDING to Pliny, the discovery of glass, like many another article that has proved of immense benefit to mankind, was entirely fortuitous. A merchant ship laden with nitre (a fossil alkali) being driven ashore on the coast of Galilee in 77 A.D., the crew went ashore for provisions, which they cooked by the water's edge, constructing a rough support for their utensils out of pieces of their cargo, which produced a vitrification of the sand beneath the fire, and afforded the hint for the manufacture of glass.

Moralizing upon this tradition, which he evidently believed, Cuvier wrote: "It could not be expected that those Phœnician sailors who saw the sand of the shores of Bœtica transformed by fire into a transparent glass, should have at once foreseen that this new substance would prolong the pleasures of sight to the old; that it would one day assist the astronomer in penetrating the depths of the heavens, and in numbering the stars of the Milky Way; that it would lay open to the naturalist a miniature world, as populous, as rich in wonders, as that which alone seemed to have been granted to his senses and his contemplation: in fine, that the most simple and direct use of it would enable the inhabitants of the coast of the Baltic Sea to build palaces more magnificent than those of Tyre and Memphis, and to cultivate, almost under the polar circle, the most delicious fruits of the torrid zone."

Since his death in 1832, how the field of its usefulness has expanded! Visitors to the late Chicago exhibition could not fail to have noticed several offices, workshops, and stores constructed entirely of hollow glass bricks, to which a highly decorative effect was given by using bricks of variegated color, joined with a colorless cement, and which, when lit from within by the electric light, presented a fairy-like aspect, unapproached by structures of glass and iron, such as the Crystal Palace. They need not, however, have travelled so far to see an erection of this nature, for a glass factory at Liverpool has glass journal-boxes for all its machinery, a glass floor, glass shingles on the roof, and a chimney 105 feet high, built wholly of glass bricks, each a foot square.

Several patents for roofing-glass have been taken out during the last few years, the best perhaps being that in which, during manufacture, the glass is moulded upon steel-wire netting, which greatly increases its strength without appreciably lessening its transparency, and allows of its being used in much larger sheets. A Paris firm of glassmakers, MM. Apert Frères, now produce some porous glass to be used for window-panes. The pores are too fine to admit of draught, but cause a pleasant and healthy ventilation in a room. By means of the toughening process, glass railway-sleepers, tram-rails, floor-plates, grindstones, etc., have been produced.

Last year some remarkable experiments were carried out by the Berlin Fire Brigade upon a patent fire-resisting glass, suitable for skylights, windows, and partitions, exhibited by Messrs. Siemens, of Dresden. It was proved to be capable of resisting a temperature of 1,300° C. for over half an hour.

Articles of dress are now being extensively made of this material. A Venetian manufacturer is turning out bonnets by the thousand, the glass cloth of which they are composed having the same shimmer and brilliancy of color as silk, and, what is a great advantage, being impervious to water. In Russia there has for a long time existed a tissue manufactured from the fibre of a peculiar filamentous stone from the Siberian mines, which by some secret process is shredded and spun into a fabric which, although soft to the touch and pliable in the extreme, is of so durable a nature that it never wears out. This is probably what has given an enterprising firm the idea of producing spun-glass dress lengths.

The Muscovite stuff is thrown into the fire when dirty, like asbestos, by which it is made absolutely clean again; but the spun-glass silk is simply brushed with a hard brush and soap and water, and is none the worse for being either stained or soiled. The material is to be had in white, green, lilac, pink, and yellow, and bids fair to become very fashionable for evening dresses. An Austrian is the inventor of this novel fabric, which is rather costly. Table-cloths, napkins, and window-curtains are also made of it. It has also been discovered that glass is capable of being turned into a fine cloth, which can be worn next the skin without the slightest discomfort.

The Infanta Eulalie of Spain was a short time ago presented with a wonderful gown by the Libbey Cut Glass Company, of Toledo. "Its foundation," writes a lady correspondent of the *Daily News*, "is a silk warp, woven with fine strands of glass. In each strand there are two hundred and fifty almost invisible threads, and to make three-quarters of a yard of this material employs four women one whole day.

This curious fabric of mingled silk and glass is arranged as a gored skirt over one of white silk. It is bordered with a flounce of chiffon, partially veiled with a glittering fringe of glass.

(*To be continued.*)